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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/735,267

12/12/2000

Sompong P. Olarig

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EXAMINER

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FORT COLLINS, CO 80527-2400

ART UNIT

PAPER NUMBER

2112

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/735,267

Applicant(s)

OLARIG ET AL.

Examiner

Paul R. Myers

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-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/9/03 have been fully considered but they are not persuasive.

In regards to applicants argument that the claim language requires a bridge and four busses, first and second computer busses and first and second multicast busses: There is no requirement that the first computer bus and the first multicast bus be separate busses. Ananthan et al teaches bus 50 performing multiple functions so that when the bus 50 is set up to transmit data in the standard PCI manner it is taken as a standard computer bus. When bus 50 is set up to multicast data it is taken as a multicast bus. Just like a multiplexed address/data bus is both an address bus and a data bus.

In regards to applicants argument that Ananthan does not describe bus 30 as being capable of broadcasting: While Ananthan shows bus 50 only as a replacement for prior art bus 35, Ananthan expressly states "the principles of the invention can be applied to any other tier of the computer system 10". Column 3 lines 15-17. There are 4 other tiers in system 10, bus 18, bus 30, bus 25 and bus 28. For the previous rejection the principles of the invention was applied to the tier of bus 30 and 35.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants argument than in Ananthan the broadcasting is not described as passing through bridge 57: The examiner agrees.

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Gehman et al teaches how a master on one bus can gain access to a target on a second bus by translating the signals across a bus bridge.

In regards to applicants argument that Gehman does not teach multicasting: The examiner agrees. Ananthan teaches multicasting.

In regards to applicants argument that Ananthan does not suggest that the bus 30 of the prior art figure 1 and bus 50 of figure 2 be included in the same system: This is incorrect. Ananthan's invention is to modify the prior art system 10 of figure 1 in the manner of figure 2. Ananthan teaches that "In the preferred embodiment, tier 40" (the tier of figure 2) "is the bottommost tier of a computer system 10" (the system of figure 1).

In regards to applicants argument that Ananthan does not teach or even suggest that bridge 57 couples to bus 50 of figure 2 and bus 30 of figure 1: this is incorrect. Ananthan teaches that "In the preferred embodiment, tier 40 is the bottommost tier of a computer system 10" tier 40 includes bridge 57 which replaces bridge 37 of the prior art.

In regards to applicants argument that Ananthan does not teach bus 30 being capable of multicast transactions. Ananthan expressly states "the principles of the invention can be applied to any other tier of the computer system 10". This includes the tier of bus 30.

In regards to applicants argument that the examiner did not explain how the art suggested the combination.

The test of obviousness is:

"whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention," *In re Gorman*, 933 F.2d at 986, 18 USPQ 2d at 1888.

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Subject matter is unpatentable under section 103 if it "'would have been obvious . . . to a person having ordinary skill in the art.' While there must be some teaching, reason, suggestion, or motivation to combine existing elements to produce the claimed device, it is not necessary that the cited references or prior art specifically suggest making the combination." *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ 2d 1500, 1502 (Fed. Cir. 1988).

"Such suggestion or motivation to combine prior art teachings can derive solely from the existence of a teaching, which one of ordinary skill in the art would be presumed to know, and the use of that teaching to solve the same [or] similar problem which it addresses." *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (CCPA 1979).

"In sum, it is off the mark for litigants to argue, as many do, that an invention cannot be held to have been obvious unless a suggestion to combine prior art teachings is found *in* a specific reference."

Entire quote from *In re Oetiker*, 24 USPQ 2d 1443 (CAFC 1992).

Accordingly, it is not required to disclose or specifically suggest particular elements. Instead the measure is what the teachings would suggest to one of ordinary skill in the art, not what the art specifically suggests.

In regards to applicants argument that the examiner has not established how achieving greater flexibility constitutes a sufficient ground to combine references in an obviousness analysis: "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation" *In re Peterson* 315 F.3d 1325 65 USPQ 2d 1379.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case without any hindsight anyone of any skill in the art

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would have recognized using a bus bridge to access devices on another bus would have been obvious (Especially since this is the purpose of bus bridges).

In regards to applicants argument that the examiner has not established where in the art of record the act of “identifying the multiple targets on the second bus via a target identification signal transmitted on a first and second multicast bus” is found: Ananthan teaches identifying multiple targets on a bus via a target identification signal transmitted on the bus (the flag set signal that sets the flags on all the targets to receive the broadcast). Gehman et al teaches how signals transmitted on a first bus are transmitted on a second bus when devices on a second bus are desired as the target.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ananthan et al PN 5,634,138 in view of Gehman et al PN 6,260,093.

In regards to claims 1 and 13: Ananthan et al teaches a computer system (Figure 1) comprising: a first computer bus (30) connected to a first plurality of bus devices (16, 20, 22, 24 and 27); a second computer bus (50 figures 2 and 3) connected to a second plurality of bus devices (70's and 60 grouped as 55); a bridge (57) coupling together said first computer bus (30) and said second computer bus (50); a first multicast bus (30) connecting to said first plurality of

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bus devices (16, 20, 22, 24 and 27) and a second multicast bus (50) connecting to said second plurality of bus devices (55); wherein one of the plurality of bus devices (60) is capable of transmitting a multicast to at least two of said second plurality of bus devices, which are identified by a signal transmitted on said first and second multicast bus (The PCI special cycle coherency flag 72). Ananthan et al teaches the master 60 only on the second bus. Ananthan et al does not teach the multicast master being on a different bus. Gehman et teach how a master on a first bus can gain access to a target on a second bus by translating the signals across a bus bridge. It would have been obvious to a person of ordinary skill in the art at the time of the invention to allow the master to be on a different bus because this would have allowed greater system flexibility.

4. Claims 2-7, 14 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ananthan et al PN 5,634,138 in view of Gehman et al PN 6,260,093 as applied to claim 1 above, and further in view of McMinn PN 6,097,403.

In regards to claims 2-3, 5, 16: Ananthan et al in view of Gehman teaches the use of specialized commands to initiate multicast transactions across a bus bridge. Ananthan et al does not teach the use of sideband signals or the signals being transmitted across the bridge. McMinn teaches specialized commands or alternatively sideband signals may be conveyed upon a first bus to a bridge and the bus bridge upon receiving the specialized commands relaying them to the second bus (Column 5 lines 16-48). It would have been obvious to a parson of ordinary skill in the art to use sideband signals instead of a specialized command because this would have allowed for faster multicast setup by eliminating the setup cycle.

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In regards to claim 4: Ananthan et al teaches at least two second devices being identified in the multicast signals.

In regards to claim 6, 20-21: Ananthan et al teaches the bridge being a PCI to PCI bridge.

In regards to claim 7: Ananthan et al teaches the bridge being a PCI to Host bridge.

In regards to claim 14: Ananthan et al teaches the Multicast bus and PCI bus being multiplexed so that the when the special PCI cycle that sets up the multicast the bus is the Multicast bus. When the data is being transmitted the bus is an ordinary PCI bus. McMinn et al teaches the use of sideband signals instead of special commands as taught by Ananthan et al. when using sideband signals instead of the special commands the bus would be Non-Multiplexed with the sideband signals being one bus and the PCI bus being the other.

In regards to claim 17: Ananthan et al transmits the data on the bus according to the protocol of the bus.

In regards to claim 18-19: McMinn et al teaches the sideband signals.

5. Claims 8-12, 15 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ananthan et al PN 5,634,138 in view of Gehman et al PN 6,260,093 and McMinn PN 6,097,403 as applied to claim 7 above, and further in view of PCI System Architecture.

In regards to claims 8 and 22-24: Ananthan et al does not teach the system architecture including a second PCI to Host bridge. PCI System Architecture teaches two PCI to Host bridges Bridge A and Bridge B as a standard system architecture. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use any of the system structures

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in the PCI System Architecture because this would have prevented the system from being limited to only simple systems.

In regards to claims 9-12: Bridges are inherently bidirectional. McMinn teaches transmitting sideband signals across a bridge. MPEP 2144.04 VI B indicates duplication of parts is not patentable. It would have been obvious to a person of ordinary skill in the art at the time of the invention to allow multiple bridge sideband signal translation because this would have allowed for greater system flexibility.

In regards to claim 15: Ananthan et al teaches the Multicast bus and PCI bus being multiplexed so that the when the special PCI cycle that sets up the multicast the bus is the Multicast bus. When the data is being transmitted the bus is an ordinary PCI bus. McMinn et al teaches the use of sideband signals instead of special commands as taught by Ananthan et al. when using sideband signals instead of the special commands the bus would be Non-Multiplexed with the sideband signals being one bus and the PCI bus being the other.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Koh et al PN 6,567,871, Gehman et al PN 6,260,093, Eskandari et al PN 6,230,228, Tanaka et al PN 5,933,613, and Narad et al PN 5,367,695 and PN 5,572,734 all teach how a master on one bus would establish connection with slaves on a second bus.

Narad et al PN 5,572,734 teaches transmitting data from a first bus to a third bus across a second.

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Nannetti et al PN 6,122,609, Tran et al PN 5,511,224, MacInnis PN 5,655,112, Brady et al 5,511,165 and Shah et al all teach multicasting data to multiple targets.

Mehdi EP 0 628 919 A1 teaches the advantage of multiplexed and non-multiplexed buses.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul R. Myers whose telephone number is 703 305 9656. The examiner can normally be reached on Mon-Thur 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703 305 4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Paul R. Myers".

PAUL R. MYERS
PRIMARY EXAMINER

PRM
February 12, 2004